UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/773,660	02/06/2004	Sai Yiu Duncan Ho	030351	7521

23696   7590   12/13/2007
QUALCOMM INCORPORATED
5775 MOREHOUSE DR.
SAN DIEGO, CA 92121

EXAMINER
CHO, UN C

ART UNIT	PAPER NUMBER
2617	

NOTIFICATION DATE	DELIVERY MODE
12/13/2007	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

us-docketing@qualcomm.com
kascanla@qualcomm.com
nanm@qualcomm.com

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on 08 January 2007.

2a)☒ This action is **FINAL.**   2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle,* 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-15,17-20,35-50 and 52-56* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-15,17-20,35-50 and 52-56* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All   b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
    Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____.

5) ☐ Notice of Informal Patent Application

6) ☐ Other: _____.

DETAILED ACTION

Claim Objections

1.   Claims 17, 18, 49 and 50 are objected to because of the following informalities:

Claims 17, 18, 49 and 50 recite the limitation "T/P" respectively, it is suggested

that T/P be written as "traffic-to-pilot (T/P) ratio" instead.

Appropriate correction is required.

Claim Rejections - 35 USC § 103

2.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set
> forth in section 102 of this title, if the differences between the subject matter sought to be patented and
> the prior art are such that the subject matter as a whole would have been obvious at the time the
> invention was made to a person having ordinary skill in the art to which said subject matter pertains.
> Patentability shall not be negatived by the manner in which the invention was made.

3.   Claims 1, 3, 5 – 8, 12, 35 – 39, 41 and 52 are rejected under 35 U.S.C. 103(a) as

being unpatentable over Natarajan (US 6,597,913 B2) in view of Diachina et al. (US

6,701,151 B2).

Regarding claim 1, Natarajan discloses a base station (Fig. 2, elements

12, 14, 22, 24 and 26) comprising: a transceiver subsystem (Natarajan: Col. 2,

lines 40 – 52; wherein the BS provides RF coverage, thus, it would have been

obvious to one of ordinary skill in the art to know that the BS has transceiver

subsystem); and a processing subsystem (Natarajan: Col. 4, lines 50 – 55;

wherein the BS determines whether to grant channel requests, thus, it would

have been obvious to one of ordinary skill in the art to know that the BS has a

processing subsystem); wherein the processing subsystem is configured to

receive a request for service from a mobile station (Natarajan: Col. 4, line 50)

and to make a determination whether or not to issue a grant to the mobile station

in response to the request for grant (Natarajan: Col. 4, lines 50 – 55).

However, Natarajan as applied above does not specifically disclose a

request for service including an identification of a specific service class and if the

and if the processing subsystem makes a determination to issue the grant, the

processing subsystem is configured to identify in the issued grant a specific

service class for which the grant is issued, the specific service class associated

with data to be transmitted on a reverse link from the mobile station to the base

station. In an analogous art, Diachina remedies the deficiencies of Natarajan by

disclosing such limitation wherein the mobile terminal specifically requests signal

radio bearer (SBR) resources by specifying at least the type of SRB required

which is indicated by providing a SRB ID as part of the SRB resource request,

thus, in response the GERAN assigns needed radio resources and logical

resources to the mobile terminal and once the mobile terminal receives the

packet channel assignment information, it transmits the information to the

GERAN on the assigned uplink packet channel (Diachina: Col. 5, line 38 through

Col. 6, line 32). Therefore, it would have been obvious to one of ordinary skill in

the art at the time the invention was made to provide the technique of Diachina to

the system of Natarajan in order to provide an expedited method to obtain

needed radio bearer resources from a radio access network that is tailored to user's need.

Regarding claim 3, Natarajan discloses all the elements including wherein the processing subsystem is configured to make the determination independently of one or more additional base stations (Natarajan: Col. 4, lines 50 – 66, wherein the BS is the only BS that can service the channel request)

Regarding claim 5, Natarajan discloses all the elements including wherein if the processing subsystem determines that the grant should be issued to the mobile station, the base station is configured to issue the grant (Natarajan: Col. 4, lines 50 – 65).

Regarding claim 6, Natarajan discloses all the elements including wherein the processing subsystem is configured to identify the mobile station in the grant (Natarajan: Col. 14, lines 50 – 65, wherein it would have been obvious to one of ordinary skill in the art to know that the mobile station would be identified in the grant so that the mobile station knew which channel(s) it had been allocated).

Regarding claim 7, Diachina as applied above discloses wherein the processing subsystem is configured to issue the grant as an individual grant (the request is granted based on the request from a mobile station; Diachina: Col. 5, line 38 through Col. 6, line 32).

Regarding claim 8, Diachina as applied above discloses wherein the processing subsystem is configured to identify in the individual grant a specific

service class for which the individual grant is issued (the request having an

identifying information associated with it and the request is granted based on the

identification information; Diachina: Col. 5, line 38 through Col. 6, line 32).

Regarding claim 12, Natarajan in view of Diachina as applied above

discloses a mobile station (Diachina: Fig. 1, element 18) comprising: a

transceiver subsystem; and a processing subsystem coupled to the transceiver

subsystem and configured to process information received from the transceiver

subsystem and to generate information to be transmitted by the transceiver

subsystem (it would have been obvious to one of ordinary skill in the art at the

time the invention was made to know that in order for a MS to communicate with

the BTS it makes use of a transceiver subsystem located within the MS as well

as a processing subsystem to make a specific request); wherein the processing

subsystem is configured to generate a request for transmission to a base station,

to identify a corresponding grant received from the base station, and to control

the transceiver subsystem to transmit data according to the received grant; and

wherein the request for transmission to the base station specifies one of a set of

available classes of service, the one available class of service associated with

data to be transmitted on a reverse link from the mobiles station to the base

station (Diachina: Col. 5, line 38 through Col. 6, line 32).

Regarding claim 35, the claim is interpreted and rejected for the same

reason as set forth in claim 1.

Regarding claim 36, the claim is interpreted and rejected for the same reason as set forth in claim 5.

Regarding claim 37, the claim is interpreted and rejected for the same reason as set forth in claim 7.

Regarding claim 38, the claim is interpreted and rejected for the same reason as set forth in claim 6.

Regarding claim 39, the claim is interpreted and rejected for the same reason as set forth in claim 8.

Regarding claim 41, the claim is interpreted and rejected for the same reason as set forth in claim 39.

Regarding claim 52, the claim is interpreted and rejected for the same reason as set forth in claim 12.

4.   Claims 2, 9, 11, 13 – 15, 17, 18, 20, 40 and 42 – 44 are rejected under 35 U.S.C. 103(a) as being unpatentable over Natarajan in view of Diachina as applied to claim 1 above, and further in view of Vrzic et al. (US 2004/0228349 A1).

Regarding claims 2 and 43, Natarajan in view of Diachina teaches all the elements/steps except, wherein the processing subsystem is configured to make the determination independently of a base station controller (claim 2), further comprising a base station controller, wherein determining whether to issue the service grant is performed without communicating with one or more additional base stations (claim 43). In an analogous art, Vrzic remedies the

deficiencies of Natarajan in view of Diachina by disclosing a method and system

including both a BSC and BTSs, in which the BTSs process and allocate the

mobile channel grant requests (Vrzic: Paragraphs 39 through 41 wherein non-

soft handoff mobile stations are scheduled by BTSs not BSCs). Therefore, it

would have been obvious to one of ordinary skill in the art at the time the

invention was made to understand that such a system could include BSCs as

taught by Vrzic, but that the BTSs would be used instead because the time to

schedule the mobile channel grant requests is shorter than when using the BSCs

(Vrzic: Paragraph 10).

Regarding claims 9, 11, 40 and 42, Vrzic as applied above discloses in

Paragraph 12, that the BTS may send dedicated or common commands (grants)

to individual mobiles or to groups of mobiles. Therefore, it would have been

obvious to one of ordinary skill in the art at the time the invention was made, to

understand that the grants taught in Natarajan could be dedicated or common

and could be sent to individual, some, or all of the mobiles in a given sector and

that dedicated and common grants could be sent together, all depending on the

various mobile requests and the data rates available to the BTS. Id.

Regarding claims 13 – 15, Natarajan in view of Diachina as applied

above does not specifically teach the mobile station having one or more buffers,

wherein each buffer is associated with one of the classes of service, the

processing subsystem is configured to monitor the buffers, and for each buffer, to

generate a transmission request if a threshold amount of data is detected in the

buffer, and further wherein the request specifies the class of service associated with the buffer and the amount of data .in the buffer. In an analogous art, Vrzic teaches that it is known in the art to use information regarding the buffer occupancy of the mobile station in determining and scheduling a channel grant. See paragraph 6. In addition, in paragraph 39, Vrzic teaches that the mobile station will transmit through either a grant or autonomously until its buffer is empty. Furthermore, as indicated in the above rejections, Padgett teaches that the service class is included in the mobile station's grant request. See paragraph 18. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made, to understand that the mobile station of Natarajan in view of Diachina would include buffers as taught by Vrzic because these buffers contain the data to be transmitted and are thus used in determining and scheduling channel grants. See Vrzic, paragraph 6. Also, it would have been obvious to one of ordinary skill in the art at the time the invention was made, to understand that the buffers would be monitored and if a threshold amount of data was detected a request would be generated including the class of service and amount of data because as taught by Vrzic, the mobile station's goal is to transmit all the data in a given buffer (see paragraph 39) at the highest rate possible (see paragraph 7).

Regarding claim 17, Vrzic as applied above discloses wherein the processing subsystem is configured to identify a maximum supportable T/P ratio in the request (Vrzic: Paragraph 73).

Regarding claim 18, Vrzic as applied above discloses wherein the processing subsystem is configured to generate feedback while transmitting under a grant, wherein the feedback indicates changes in the maximum supportable T/P ratio (Vrzic: Paragraph 73 and Paragraph 107 to Paragraph 108).

Regarding claim 20, Vrzic teaches that a mobile station can transmit at a data rate up to an assigned maximum data rate autonomously without waiting for a scheduling grant. See, Vrzic, paragraph 39. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made, to understand that the mobile station in Natarajan in view of Diachina would send data autonomously at a specific lower data rate until a grant was received because while a grant would allow the mobile station to transmit at a higher data rate, without a grant, the mobile station could still transmit data, just at a lower data rate. See Vrzic, paragraph 39.

Regarding claim 44, Natarajan as applied above discloses determining whether to issue the service grant is performed without communicating with one or more additional base stations (Natarajan: Col. 4, lines 50 – 66, wherein the BS is the only BS that can service the channel request).

5.   Claims 4, 19 and 45 are rejected under 35 U.S.C. 103(a) as being unpatentable over Natarajan in view of Diachina as applied to claim 1 above, and further in view of Padgett et al. (US 2002/0183039 A1).

Regarding claims 4 and 45 Natarajan teaches all the elements/steps except wherein (the determination is made) (claim 4), (determining whether to issue the service grant is performed) (claim 45), at the medium access control layer. In an analogous art, Padgett remedies the deficiencies of Natarajan in view of Diachina by disclosing an adaptive load and coverage management (ALCM) system located at the BS, which includes a load management module, which further includes a MAC layer entity that monitors the determination of the channel grants (Padgett: Paragraphs 18 and 25). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made, to understand that the BS of Natarajan in view of Diachina would determine whether to grant the channel request at the MAC layer because as taught by Padgett, the determination of the channel grants in the base station occurs at the MAC layer. See Id.

Regarding claim 19, Natarajan in view of Diachina and further in view of Padgett as applied above teaches all the elements of dependent claim 19, including the mobile station is configured to generate one or more additional requests for service for transmission to the base station if no grant is received in response to a previous request (Natarajan: Col. 4, lines 50 – 65, it would have been obvious to one of ordinary skill in the art at the time the invention was made to know that the mobile station would generate additional requests if no grant was received as the need for the channel has not changed).

6.   Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over

Natarajan in view of Diachina and in view of Vrzic and further in view of Padgett.

Regarding claim 10, Natarajan in view of Diachina and in view of Vrzic

as applied above does not explicitly teach indicating a specific service class for

which the grant is issued. In an analogous art, Padgett teaches that embedded in

the mobile request may be information about the service class and that in the

granted request, the base station indicates the service class for which the grant

is granted. See paragraph 18. Therefore, it would have been obvious to one of

ordinary skill in the art at the time the invention was made, to modify Natarajan in

view of Diachina and in view of Vrzic to include classes of service in the mobile

channel request as well as in the base station's grant as taught by Padgett

because the service information in the request supplies specific information to

the BS to help in determining whether and at what rate to grant the channel

request and the resulting grant from the BS indicates the service and

corresponding rate to the mobile station. See Id

7.   Claims 46 – 50 and 53 – 56 are rejected under 35 U.S.C. 103(a) as being

unpatentable over Natarajan in view of Diachina as applied to claim 35 above, and

further in view of Padgett and Vrzic.

Regarding claim 46, Natarajan in view of Diachina as applied above

teaches all the steps including transmitting a request for a grant from a mobile

station to the base station (Natarajan: Col. 4, lines 50 – 65). However, Natarajan

in view of Diachina as applied above does not explicitly teach, the request

specifying one of a set of available classes of service; if a grant corresponding to

the request is issued, transmitting data in the specified class according to the

received grant; and if no grant corresponding to the request is issued, either

transmitting data in the specified class in autonomous mode or transmitting a

subsequent request, or both. In an analogous art, Padgett teaches that

embedded in the mobile request may be information about the service classes

requested and that in the granted request, the base station indicates the service

class for which the grant is granted (Padgett: Paragraph 18). Also, Vrzic teaches

that a mobile station can transmit at a data rate up to an assigned maximum data

rate autonomously without waiting for a scheduling grant (Vrzic: Paragraph 39).

Therefore, it would have been obvious to one of ordinary skill in the art at the

time the invention was made, to modify Natarajan in view of Diachina to include

classes of service in the mobile channel request as taught by Padgett because it

supplies specific information to the BS to help in determining whether and at

what rate to grant the channel request. Also, it would have been obvious to one

of ordinary skill in the art at the time the invention was made, to understand that

the mobile station in Natarajan in view of Diachina would send data

autonomously at a specific lower data rate until a grant was received because

while a grant would allow the mobile station to transmit at a higher data rate,

without a grant, the mobile station could still transmit data, just at a lower data

rate. Also, it would have been obvious to one of ordinary skill in the art at the time

the invention was made to understand that in view of Natarajan that the mobile

station would generate additional requests if no grant was received as the need

for the channel grant would not have changed.

Regarding claims 47, 48, 53 and 54, Natarajan in view of Diachina and

further in view of Padgett and Vrzic teach all the steps including a mobile station

having one or more buffers, wherein each buffer is associated with one of the

classes of service, the processing subsystem is configured to monitor the buffers,

and for each buffer, to generate a transmission request if a threshold amount of

data is detected in the buffer, and further wherein the request specifies the class

of service associated with the buffer and the amount of data in the buffer.

Specifically, as indicated in the above rejections, Vrzic teaches that it is known in

the art to use information regarding the buffer occupancy of the mobile station in

determining and scheduling a channel grant. See paragraph 6. In addition, in

paragraph 39, Vrzic teaches that the mobile station will transmit through either a

grant or autonomously until its buffer is empty.

Therefore, it would have been obvious to one of ordinary skill in the art

at the time the invention was made, to understand that the mobile station of

Natarajan in view of Diachina would include buffers as taught by Vrzic because

these buffers contain the data to be transmitted and are thus used by the mobile

station in determining the requests for channel grants. See Vrzic, paragraph 6.

Also, it would have been obvious to one of ordinary skill in the art at the time the

invention was made, to understand that the buffers would be monitored and if a

threshold amount of data was detected a request would be generated including

the class of service and amount of data because as taught by Vrzic, the mobile

station's goal is to transmit all the data in a given buffer (see paragraph 39) at the

highest rate possible (see paragraph 7).

Regarding claims 49 and 55, Vrzic as applied above discloses wherein

the processing subsystem is configured to identify a maximum supportable T/P

ratio in the request (Vrzic: Paragraph 73).

Regarding claim 50 and 56, Vrzic as applied above discloses wherein

the processing subsystem is configured to generate feedback while transmitting

under a grant, wherein the feedback indicates changes in the maximum

supportable T/P ratio (Vrzic: Paragraph 73 and Paragraph 107 to Paragraph

108).

Response to Arguments

8.   Applicant's arguments with respect to claims 1 – 15, 17 – 20, 35 – 50 and 52 –

56 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

9.   Applicant's amendment necessitated the new ground(s) of rejection presented in

this Office action. Accordingly, **THIS ACTION IS MADE FINAL.** See MPEP

§ 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37

CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Un C. Cho whose telephone number is (571) 272-7919. The examiner can normally be reached on M ~ F 8:00AM to 4:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, George Eng can be reached on (571) 272-7495. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.
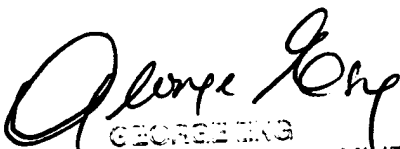
Information regarding the status of an application may be obtained from the

Patent Application Information Retrieval (PAIR) system. Status information for

published applications may be obtained from either Private PAIR or Public PAIR.

Status information for unpublished applications is available through Private PAIR only.

For more information about the PAIR system, see http://pair-direct.uspto.gov. Should

you have questions on access to the Private PAIR system, contact the Electronic

Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a

USPTO Customer Service Representative or access to the automated information

system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Un C Cho   /2/3/07
Examiner
Art Unit 2617

GEORGE ENG
SUPERVISORY PATENT EXAMINER